2015 WORLD RADIOCOMMUNICATION CONFERENCE

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

AGENDA ITEM 1.6.1 *To consider possible additional primary allocations to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1 and review the regulatory provisions on the current allocations to the fixed-satellite service within this range, taking into account the results of ITU-R studies, in accordance with Resolution **151 (WRC-12)***

AGENDA ITEM 1.6.2 *To consider possible additional primary allocations to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz; and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU R studies, in accordance with Resolution **152 (WRC 12)***

ISSUE: This proposal addresses the frequency band 14.5-15.35 GHz in the uplink direction in all three Regions under agenda items 1.6.1 and 1.6.2.

BACKGROUND:

This agenda item studies the unplanned fixed-satellite service (FSS) imbalance in the Earth-to-space direction within the three ITU Regions. Specifically, agenda item 1.6.1 considers allocating an additional 250 MHz in the uplink and downlink directions between 10 and 17 GHz in Region 1, while Agenda item 1.6.2 considers allocating an additional 250 MHz and 300 MHz FSS (Earth-to-space) within the range 13.0-17.0 GHz in Region 2 and Region 3, respectively. ITU-R sharing studies for this agenda item shall exclude the frequency band 13.0-13.25 GHz from consideration, in accordance with resolves 4 of Resolution **151** (**WRC-12**) and resolves 3 of Resolution **152** (**WRC-12**). As a result, studies in the ITU-R must demonstrate compatibility with incumbent services prior to WRC-15 allocating any additional spectrum to the FSS. This proposal addresses the Earth-to-space (uplink) portion of agenda items 1.6.1 and 1.6.2 in order to achieve a globally harmonized allocation.

The existing unplanned FSS bands in the 10-15 GHz frequency range are extensively used for a myriad of applications. The very small aperture terminal (VSAT) services, video distribution, broadband networks, internet services, satellite newsgathering, and backhaul links have triggered the rapid rise in the demand. Satellite traffic is typically symmetrical in a large variety of applications, i.e. similar amounts of Earth-to-space (uplink) and space-to-Earth (downlink) traffic are transmitted. However, in ITU Regions 2 and 3, there are asymmetrical Earth-to-space and space-to-Earth FSS allocations that are used for these services.

The 250 MHz spectrum asymmetry in Region 2 and 300 MHz in Region 3 translates to approximately 10 and 14 transponders for each respective Region, considering a transponder bandwidth of 36 MHz in both polarizations. Some satellite networks are designed with an additional uplink beam which has sufficient geographical isolation with the uplink beam within the intended service area. The satellites currently deployed have been registered in all of the available non-planned bands in Regions 2 and 3, both in the

uplink and the downlink. Faced with the current congestion and spectrum asymmetry, it is challenging for satellite operators to effectively expand their communication services within this frequency range to meet the growing market demands.

In order to address this spectrum shortage and imbalance, WRC-12 adopted agenda item 1.6.2 to consider additional primary allocations to the fixed-satellite service in the range 13-17 GHz and review regulatory provisions for existing FSS allocations, taking into account ITU-R studies in accordance with Resolution **152 (WRC-12)**. Resolution **152 (WRC-12)** invites the ITU-R to complete, for WRC-15, sharing and compatibility studies towards additional allocations to the fixed-satellite service in the Earth-to-space direction of 250 MHz in Region 2 and 300 MHz in Region 3 within the band 13-17 GHz, focusing on the frequency range that is contiguous (or near contiguous) to the existing fixed satellite service allocations, while protecting existing primary services within these bands. This Resolution also calls for studies considering utilization of existing allocations to the FSS in the Earth-to-space direction through a review of regulatory provisions, except for Nos. **5.502** and **5.503** and Resolution **144 (Rev. WRC-07)**.

In Region 1, while there are equal allocations between uplink and downlink spectrum, there is a difference of 250 and 300 MHz of unplanned FSS spectrum when compared with Regions 2 and 3. In order to facilitate efficient use of spectrum for satellite services and address the shortage of FSS spectrum in Region 1 as compared to FSS allocations in other Regions, Agenda Item 1.6.1 sets out to consider additional primary allocations to the FSS in the range 10-17 GHz in Region 1 (Earth-to-space and space-to-Earth) and a review of the regulatory provisions for existing FSS allocations, taking into account ITU-R studies in accordance with Resolution **151** (**WRC-12**).

It should be noted that a world-wide allocation for the FSS has a significant advantage over a regional one. For example, the same and/or equal FSS allocations for Regions 1, 2 and 3 is important in terms of planning and construction of satellite networks and the efficient use of the orbit/spectrum resource.

Within portions of the band 10-17 GHz are primary allocations to the fixed, mobile, mobile except aeronautical mobile, radiolocation, Earth exploration-satellite (active), Earth exploration-satellite (passive), fixed-satellite (Earth-to-space), radio astronomy, space research, space research (passive), radionavigation, and aeronautical radionavigation services. In accordance with Resolutions **151** (**WRC-12**) and **152 (WRC-12)**, the ITU-R should conduct sharing studies to address the protection of existing in-band primary services and compatibility studies to address interference.

The United States also maintains extensive mobile service operations in the band 14.5-15.35 GHz, which will require in-depth study with the proposed FSS operations. As noted in Resolution **152 (WRC-12)**, *further recognizing e*, the band 15.35-15.4 GHz is allocated to passive services and No. **5.340** applies.

The studies in Working Party 4A (contained in Preliminary Draft New Reports ITU-R S.[R1.FSS] and ITU-R S.[R2R3.FSS]) consider the FSS characteristics provided by the membership in the compatibility analyses. The analyses conducted between the FSS (Earth-to-space) and mobile and aeronautical mobile services in the 14.5-15.35 GHz band demonstrate that interference can occur at distances of 50 to 470 km. This is consistent with the predetermined coordination distance that is described in Table 10 of Appendix 7 of the Radio Regulations for the FSS (Earth-to-space) and the mobile service that currently shares co-primary status in the 14.5-14.8 GHz band. Statistical analyses demonstrate that interference within the 50 to 470 km distances is likely to occur only 10-15% of the time. This result suggests coordination between the FSS (Earth-to-space) and mobile and aeronautical mobile services would be a feasible approach to achieve compatibility. With respect to sharing with the secondary space research allocation, the sharing studies indicate that sharing with data relay feeder links in the Earth-to-space direction currently operating in 14.5-14.8 GHz can be achieved through regular coordination.

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In order to address resolves 2 of Resolution **151 (WRC-12)** and **152 (WRC-12)**, provisions are added to ensure the integrity and adequate protection of the Regions 1 and 3 feeder-link Plan and List. Specifically, required coordination procedures between Appendix 30A networks and the new fixed-satellite service utilization of the bands are identified.

PROPOSAL:

ARTICLE 5

FREQUENCY ALLOCATIONS

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Section IV – Table of Frequency Allocations
(See No. 2.1)

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MOD USA/1.6.2/1

14-15.4 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
14-14.25	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505	
14.25-14.3	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	**14.3-14.4** FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	**14.3-14.4** FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A
14.4-14.47	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A	
14.47-14.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A	
14.5-14.8	FIXED FIXED-SATELLITE (Earth-to-space) 5.510 5.FSSA 5.FSSB MOBILE Space research	
14.8-15.35	FIXED MOBILE FIXED-SATELLITE (Earth-to-space) 5.FSSA 5.FSSB Space research 5.339	

15.35-15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511

Reasons: to add a fixed-satellite service allocation to 14.8-15.35 GHz in order to alleviate the spectrum imbalance and allow full use of the downlink fixed-satellite service spectrum in 10.7-12.7 GHz.

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MOD USA/1.6.2/2

5.510 The use of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) for feeder links for the broadcasting-satellite service is governed by Appendix 30A. This use is reserved for countries outside Europe.

Reasons: to clarify which uses of 14.5-14.8 GHz are governed by Appendix 30A.

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ADD USA/1.6.2/3

5.FSSA For other uses of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) not covered by No. **5.510** and for use of the band 14.8-15.35 GHz by the fixed-satellite service (Earth-to-space), the fixed-satellite service earth stations shall have a minimum earth station diameter of 1.2 meters.

Reasons: to include limitations on use of the 14.5-14.8 GHz by non-BSS feeder links and for use of the band 14.8-15.35 GHz in order to facilitate sharing with the mobile and fixed services.

ADD USA/1.6.2/4

5.FSSB In the band 14.5-14.8 GHz, satellite networks in fixed-satellite service (Earth-to-space) not subject to No. **5.510** shall coordinate under No. 9.7 with Earth-to-space links to geostationary satellite networks in the secondary space research service for which coordination requests were submitted prior to 27 November 2015.

Reasons: to ensure coordination with existing secondary space research service networks operating in this frequency band, while at the same time ensuring these new provisions do not apply to the Appendix 30A Plan and List.

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APPENDIX 7 (Rev.WRC-15)

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TABLE 7b (Rev.WRC-15)

Parameters required for the determination of coordination distance for a transmitting earth station

Transmitting space radiocommunication service designation		**Fixed-satellite, mobile-satellite**	**Aero-nautical mobile-satellite (R) service**	**Aero-nautical mobile-satellite (R) service**	**Fixed-satellite**	**Fixed-satellite**	**Fixed-satellite**	**Fixed-satellite**		**Space operation, space research**		**Fixed-satellite, mobile-satellite, meteorological-satellite**		**Fixed-satellite**		**Fixed-satellite**		**Fixed-satellite**	**Fixed-satellite** [3]	**Fixed-satellite**	**Fixed-satellite** [3]
Frequency bands (GHz)		2.655-2.690	5.030-5.091	5.030-5.091	5.091-5.150	5.091-5.150	5.725-5.850	5.725-7.075		7.100-7.235 [5]		7.900-8.400		10.7-11.7		12.5-15.35		13.75-14.3	15.43-15.65	17.7-18.4	19.3-19.7
Receiving terrestrial service designations		Fixed, mobile	Aeronautical radio-navigation	Aeronautical mobile (R)	Aeronautical radio-navigation	Aeronautical mobile (R)	Radiolocation	Fixed, mobile		Fixed, mobile		Fixed, mobile		Fixed, mobile		Fixed, mobile		Radiolocation radionavigation (land only)	Aeronautical radionavigation	Fixed, mobile	Fixed, mobile
Method to be used		§ 2.1	§ 2.1, § 2.2	§ 2.1, § 2.2			§ 2.1	§ 2.1		§ 2.1, § 2.2		§ 2.1		§ 2.1		§ 2.1, § 2.2		§ 2.1		§ 2.1, § 2.2	§ 2.2
Modulation at terrestrial station [1]		A						A	N	A	N	A	N	A	N	A	N	–		N	N
Terrestrial station interference parameters and criteria	p_0 (%)	0.01						0.01	0.005	0.01	0.005	0.01	0.005	0.01	0.005	0.01	0.005	0.01		0.005	0.005
	n	2						2	2	2	2	2	2	2	2	2	2	1		2	2
	p (%)	0.005						0.005	0.0025	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.01		0.0025	0.0025
	N_L (dB)	0						0	0	0	0	0	0	0	0	0	0	0		0	0
	M_S (dB)	26 [2]						33	37	33	37	33	37	33	40	33	40	1		25	25
	W (dB)	0						0	0	0	0	0	0	0	0	0	0	0		0	0
Terrestrial station parameters	G_X (dBi) [4]	49 [2]	6	10	6	6		46	46	46	46	46	46	50	50	52	52	36		48	48
	T_e (K)	500 [2]						750	750	750	750	750	750	1 500	1 100	1 500	1 100	2 636		1 100	1 100
Reference bandwidth	B (Hz)	4×10^3	150×10^3	37.5×10^3	150×10^3	10^6		4×10^3	10^6	4×10^3	10^6	4×10^3	10^6	4×10^3	10^6	4×10^3	10^6	10^7		10^6	10^6
Permissible interference power	$P_r(p)$ (dBW) in B	−140	−160	−157	−160	−143		−131	−103	−131	−103	−131	−103	−128	−98	−128	−98	−131		−113	−113

1 A: analogue modulation; N: digital modulation.

2 The parameters for the terrestrial station associated with transhorizon systems have been used. Line-of-sight radio-relay parameters associated with the frequency band 5 725-7 075 MHz may also be used to determine a supplementary contour with the exception that $G_X = 37$ dBi.

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[3] Feeder links of non-geostationary-satellite systems in the mobile-satellite service.

[4] Feeder losses are not included.

[5] Actual frequency bands are 7 100-7 155 MHz and 7 190-7 235 MHz for space operation service and 7 145-7 235 MHz for the space research service.

Reasons: To provide a coordination mechanism between transmitting earth stations in 14.5-15.35 GHz and fixed and mobile earth stations. Aeronautical mobile stations are already addressed through Table 10 of Appendix 7.

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APPENDIX 30A (REV.WRC-15)*

Provisions and associated Plans and List[1] for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz[2] and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2 (Rev. WRC-15)

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(See Articles **9** and **11**) (WRC-03)

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ARTICLE 4 (REV.WRC-15)

Procedures for modifications to the Region 2 feeder-link Plan or for additional uses in Regions 1 and 3

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4.1 PROVISIONS APPLICABLE TO REGIONS 1 AND 3

4.1.1 An administration proposing to include a new or modified assignment in the feeder-link List shall seek the agreement of those administrations whose services are considered to be affected, i.e. administrations[4, 5]:

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* The expression "frequency assignment to a space station", wherever it appears in this Appendix, shall be understood to refer to a frequency assignment associated with a given orbital position. (WRC-03)

1 The Regions 1 and 3 feeder-link List of additional uses is annexed to the Master International Frequency Register (see Resolution **542 (WRC-2000)****). (WRC-03)

2 This use of the band 14.5-14.8 GHz is reserved for countries outside Europe.

** *Note by the Secretariat*: This Resolution was abrogated by WRC-03.

Note by the Secretariat: Reference to an Article with the number in roman is referring to an Article in this Appendix.

4 Agreement with administrations having a frequency assignment in the bands 14.5-14.8 GHz or 17.7-18.1 GHz to a terrestrial station, or having a frequency assignment in the band 17.7-18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth), or having a frequency assignment in the band 17.3-17.8 GHz in the broadcasting-satellite service shall be sought under No. **9.17**, No. **9.17A** or No. **9.19**, respectively.

a) of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service which is included in the Regions 1 and 3 feeder-link Plan with a necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment; *or*

b) of Regions 1 and 3 having a feeder-link frequency assignment included in the feeder-link List or for which complete Appendix **4** information has been received by the Radiocommunication Bureau in accordance with the provisions of § 4.1.3, and any portion of which falls within the necessary bandwidth of the proposed assignment; *or*

c) of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service which is in conformity with the Region 2 feeder-link Plan, or in respect of which proposed modifications to that Plan have already been received by the Bureau in accordance with the provisions of § 4.2.6 with a necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment; *or*

d) having a feeder-link frequency assignment in the band 17.8-18.1 GHz in Region 2 in the fixed-satellite service (Earth-to-space) to a space station in the broadcasting-satellite service or a frequency assignment in the band 14.5-14.8 GHz in the fixed-satellite service (Earth-to-space) not subject to the Regions 1 and 3 feeder-link Plan or List which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. **9.7**, or under § 7.1 of Article 7, with a necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment. (Rev. WRC-15)

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Reasons: to add mechanisms for coordination between fixed-satellite service allocation in 14.5-14.8 GHz with the Regions 1 and 3 feeder-link Plan or List as requested in resolves 2 of Resolution **151 (WRC-12)** and **152 (WRC-12)**.

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5 Coordination under Nos. **9.17** or **9.17A** is not required for an earth station of an administration on the territory of which this earth station is located and for which the procedures of former § 4.2.1.2 and 4.2.1.3 of Appendix **30A (WRC-97)** have been successfully applied by that administration before 3 June 2000 in respect of terrestrial stations or earth stations operating in the opposite direction of transmission. (WRC-03)

ARTICLE 7 (REV.WRC-15)

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Coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in Region 1 in the band 17.3-18.1 GHz and in Regions 2 and 3 in the band 17.7-18.1 GHz, to stations in the fixed-satellite service (Earth-to-space) in Region 2 in the band 17.8-18.1 GHz, to stations in the fixed-satellite service (Earth-to-space) in any region in the band 14.5-14.8 GHz where those stations are not subject to the Regions 1 and 3 feeder-link Plan or List and to stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz when frequency assignments to feeder links for broadcasting-satellite stations in the 17.3-18.1 GHz band in Regions 1 and 3 or in the band 17.3-17.8 GHz in Region 2 are involved[28]

Section I – Coordination of transmitting space or earth stations in the fixed-satellite service or transmitting space stations in the broadcasting-satellite service with assignments to broadcasting-satellite service feeder links

7.1 The provisions of No. **9.7**[29] and the associated provisions under Articles **9** and **11** are applicable to transmitting space stations in the fixed-satellite service in Region 1 in the band 17.3-18.1 GHz, to transmitting space stations in the fixed-satellite service in Regions 2 and 3 in the band 17.7-18.1 GHz, to transmitting earth stations in the fixed-satellite service in Region 2 in the band 17.8-18.1 GHz, to transmitting earth stations in the fixed-satellite service in any region in the band 14.5-14.8 GHz where those stations are not subject to the Regions 1 and 3 feeder-link Plan or List and to transmitting space stations in the broadcasting-satellite service in Region 2 in the band 17.3-17.8 GHz. (Rev. WRC-15)

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7.2 In applying the procedures referred to in § 7.1, the provisions of Appendix **5** are replaced by the following:

7.2.1 The frequency assignments to be taken into account are:

a) the assignments in conformity with the appropriate Regional feeder-link Plan in Appendix **30A**;

b) the assignments included in the Regions 1 and 3 feeder-link List;

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[28] These provisions do not replace the procedures prescribed in Articles **9** and **11** when stations other than those for feeder links in the broadcasting-satellite service subject to a Plan are involved. (WRC-03)

[29] The provisions of Resolution **33 (Rev.WRC-97)*** are applicable to space stations in the broadcasting-satellite service for which the advance publication information or the request for coordination has been received by the Bureau prior to 1 January 1999.

* *Note by the Secretariat*: This Resolution was revised by WRC-03.

c) the assignments for which the procedure of Article 4 has been initiated as from the date of receipt of the complete Appendix **4** information under § 4.1.3 or 4.2.6. (WRC-03)

7.2.2 The criteria to be applied are those given in Annex 4.

Reasons: to add mechanisms for coordination between fixed-satellite service allocation in 14.5-14.8 GHz with the Regions 1 and 3 feeder-link Plan or List as requested in resolves 2 of Resolution **151 (WRC-12)** and **152 (WRC-12)**.

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ANNEX 1

Limits for determining whether a service of an administration is considered to be affected by a proposed modification to the Region 2 feeder-link Plan or by a proposed new or modified assignment in the Regions 1 and 3 feeder-link List or when it is necessary under this Appendix to seek the agreement of any other administration (Rev.WRC-15)

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6 Limits applicable to protect a frequency assignment in the band 17.8-18.1 GHz (Region 2) to a receiving feeder-link space station in the fixed-satellite service (Earth-to-space) or a frequency assignment in the band 14.5-14.8 GHz (any region where the frequency assignment is not subject to the Regions 1 and 3 feeder-link Plan or List) to a receiving space station in the fixed-satellite service (Earth-to-space) (Rev. WRC-15)

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With respect to § 4.1.1 *d)* of Article 4, an administration is considered affected by a proposed new or modified assignment in the Regions 1 and 3 feeder-link List when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link in Region 2 or at the receiving space station of the unplanned fixed-satellite service uplinks in any region of that administration would cause an increase in the noise temperature of the receiving space station which exceeds the threshold value of $\Delta T/T$ corresponding to 6%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix **8**, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the necessary bandwidth of the uplink carriers. (Rev. WRC-15)

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Reasons: to extend the existing coordination trigger for unplanned services and the Plan/List to coordination between fixed-satellite service allocation in 14.5-14.8 GHz with the Regions 1 and 3 feeder-link Plan or List, in order to address the request in resolves 2 of Resolution **151 (WRC-12)** and **152 (WRC-12)**.

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ANNEX 4 (REV.WRC-15)

Criteria for sharing between services

1 Threshold values for determining when coordination is required between, on one hand, transmitting space stations in the fixed-satellite service or the broadcasting-satellite service and, on the other hand, a receiving space station in the feeder-link Plan or List or a proposed new or modified receiving space station in the List, in the frequency bands 17.3-18.1 GHz (Regions 1 and 3) and in the feeder-link Plan or a proposed modification to the Plan in the frequency band 17.3-17.8 GHz (Region 2) (WRC-03)

With respect to § 7.1, Article 7, coordination of a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service with a receiving space station in a broadcasting-satellite service feeder link in the Regions 1 and 3 feeder-link Plan or List, or a proposed new or modified receiving space station in the List, or in the Region 2 feeder-link Plan or proposed modification to the Plan is required when the power flux-density arriving at the receiving space station of a broadcasting-satellite service feeder link of another administration would cause an increase in the noise temperature of the feeder-link space station which exceeds a threshold value of $\Delta T_s / T_s$ corresponding to 6%. $\Delta T_s / T_s$ is calculated in accordance with Case II of the method given in Appendix **8**. (WRC-03)

2 Threshold values for determining when coordination is required between, on one hand, transmitting feeder-link earth stations in the fixed-satellite service in Region 2 in 17.8-18.1 GHz or transmitting earth stations in the fixed-satellite service in 14.5-14.8 GHz not subject to the Regions 1 and 3 feeder-link Plan or List and, on the other hand, a receiving space station in the Regions 1 and 3 feeder-link Plan or List or a proposed new or modified receiving space station in the List, in the frequency bands 14.5-14.8 GHz or 17.8-18.1 GHz (Rev. WRC-15)

With respect to § 7.1, Article 7, coordination of a transmitting earth station in the fixed-satellite service with a receiving space station in a broadcasting-satellite feeder link in the Regions 1 and 3 feeder-link Plan or List, or a proposed new or modified receiving space station in the List, is required when the power flux density arriving at the receiving space station of a broadcasting-satellite service feeder link of another administration would cause an increase in the noise temperature of the feeder-link space station which exceeds a threshold value of $\Delta T/T$ corresponding to 6%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix **8**, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the necessary bandwidth of the feeder-link carriers. (Rev. WRC-15)

Reasons: to extend the existing coordination trigger for unplanned services and the Plan/List to coordination between fixed-satellite service allocation in 14.5-14.8 GHz with the Regions 1 and 3 feeder-link Plan or List, in order to address the request in resolves 2 of Resolution **151 (WRC-12)** and **152 (WRC-12)**.

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